



A new species of scaly blenny of the genus *Labrisomus* (Actinopterygii: Labrisomidae) from the tropical West Atlantic

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Abstract

A new species of scaly blenny, *Labrisomus conditus* **sp. n.**, is described from Fernando de Noronha Archipelago, off northeastern Brazil. It differs from its Western Atlantic congeners by the following combination of characters: nuchal cirri when depressed not reaching dorsal-fin origin, 68 to 73 lateral line scales, first and second dorsal-fin spines slightly shorter than third spine and not flexible, numerous pale dots overall (light blue in life), opercular dark spot with incomplete and diffuse broad pale margin (orange in life). The new species is a territorial bottom-dweller in rocky shores and is found among algae and in crevices at depths from 0.5 to 6 m. *Labrisomus conditus* **sp. n.** feeds mostly on crustaceans (crabs, amphipods) and molluscs (snails, bivalves). The new species increases to five the species within the genus *Labrisomus* recorded from Southwestern Atlantic.

Key words: *Labrisomus*, new species, Labrisomidae, reef fish, oceanic islands, Southwestern Atlantic

Introduction

The Western Atlantic scaly blennies of the genus *Labrisomus* Swainson were reviewed by Hubbs (1953) and Springer (1959a) who recognized eight species. Since Springer's (1959a) revision two additional species were described from the Western Atlantic (Springer 1959b, Sazima *et al.* 2002). Herein we describe a new species of *Labrisomus* from Fernando de Noronha Archipelago, off northeastern Brazil, previously misidentified as *Labrisomus nuchipinnis* (Quoy & Gaimard) (Boulenger 1890, Springer 1959a, Soto 2001, Mendes 2006).

Material and methods

Counts and measurements follow Springer (1959a) and Sazima *et al.* (2002). For counts and proportions those of the holotype are given first, followed (in parentheses) by range and mean of 15 paratypes. Specimen lengths are all given as mm standard length (SL), and in the material examined parenthetical expressions give number of specimens followed by the size range and sex. Counts of nuchal, supra-orbital, and nasal cirri given for the holotype only; range for cirri not given as their number increases with specimen length (Springer 1959a). Color description is based mostly on specimens of the type series preserved in ethanol, and individuals observed alive in natural habitat. Institutional abbreviations are listed in Leviton *et al.* (1985).

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***Labrisomus conditus* sp. n.**

Masquerader hairy blenny

(Figures 1–4)

Labrisomus nuchipinnis, (non Quoy & Gaimard, 1824), Boulenger 1890: 483, Springer 1959a: 429 (part), Soto 2001: 151, Mendes 2006: 818–822.

Labrisomus cf. *nuchipinnis*, Sazima *et al.* 2002: 130, Sazima *et al.* 2007: 355.

Type series: Holotype: ZUEC 6225 (119.0, male), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima & J. L. Gasparini, 14 June 2003. Paratypes: MZUSP 46338 (1, 88.5, unsexed), Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by A. Carvalho Filho, 20–23 June 1985; MZUSP 66820 (1, 100.0, female), Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by A. Carvalho Filho, March 1980; MZUSP 79735 (1, 95.8, male), Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by L. F. Mendes, July 1997; ZUEC 5370 (1, 94.8, female), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima; 18 June 2001; ZUEC 6218 (1, 127.0, male), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima; 13 June 2003; ZUEC 6224 (4, 108.1–134.2, 3 males, 1 female), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima & J. L. Gasparini, 15 June 2003; ZUEC 6225 (3, 109.3–120.5, 2 males, 1 female), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima & J. L. Gasparini, 14 June 2003; ZUEC 6306 (1, 132.1, female), Ilhota de Dois Irmãos, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by A. Carvalho-Filho, 25 October 2004; CIUFES 1052 (1, 93.2, female), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima; 18 June 2001; CIUFES 1107 (1, 124.7, male), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima & J. L. Gasparini, 14 June 2003.

Non-type material: ZUEC 5374 (2, 54.0–75.1, 1 male, 1 unsexed juvenile), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima, 17 June 2001; ZUEC 6224 (1, 91.8, male), Praia do Boldró, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by I. Sazima & J. L. Gasparini, 15 June 2003; ZUEC 6306 (1, 85.3, male), Ilhota de Dois Irmãos, Fernando de Noronha Archipelago (03°50'S, 32°25'W), collected by A. Carvalho-Filho, 25 October 2004.

Comparative material: *Labrisomus cricota*: ZUEC 3434 (holotype), ZUEC 4843 (paratypes), *Labrisomus filamentosus*: USNM 197788, *Labrisomus gobio*: MZUSP 48244, *Labrisomus kalisherae*: ZUEC 3466, *Labrisomus nuchipinnis*: ZUEC 3404, 5007.

Diagnosis: *Labrisomus conditus* sp. n. differs from its Western Atlantic congeners (Springer 1959a, Sazima *et al.* 2002) by the following combination of characters: nuchal cirri when depressed not reaching dorsal-fin origin, 68 to 73 lateral line scales, first and second dorsal-fin spines slightly shorter than third spine and not flexible, numerous pale dots overall (light blue in life), opercular dark spot with incomplete and diffuse broad pale margin (orange in life).

Description: Morphometrics of holotype (119.0 mm SL, male) and 15 paratypes (88.5–134.2 mm SL, 8 males, 6 females, 1 unsexed) as percent of SL (range and mean of paratypes in parentheses): head length 31.7 (29.8–32.5, 31.3); snout length 9.4 (7.7–9.8, 9.0); orbit diameter 6.2 (6.2–7.0, 6.6); interorbital width 4.5 (4.0–5.0, 4.5); upper jaw length 15.0 (13.1–14.6, 13.6) body depth 28.1 (24.2–29.3, 26.2); caudal peduncle depth 9.4 (8.8–10.5, 9.8); longest pectoral ray 22.0 (19.2–22.5, 20.8.); middle pelvic ray 18.1 (16.7–20.3, 18.0). Males and females overlap in all proportions.

Body entirely scaly except for interpelvic space, pectoral axilla, head and opercle; scales present on

caudal and pectoral-fin bases, basal portion of whole dorsal-fin and anal-fin membranes. Numerous branched canals and pores on head, one branch from pre-opercular series extending onto upper opercle. Mouth subterminal. A single well-developed row of conical slightly recurved teeth on each jaw, and an inner close-set patch of much smaller, villiform teeth. Distal teeth on upper jaw larger than proximal ones. Vomerine teeth in a “V” pattern, the apical and centralmost one at least 5 times larger than remainder, the latter arranged in 2–3 rows. Dorsal-fin rays XVIII, 12 (12), anal-fin rays II, 17 (16–17, 16.8), pelvic-fin rays I, 3 (3); pectoral-fin rays 14 (14). Lateral line scales 69 (68–73, 70). Nuchal cirri 60, supra-orbital cirri 24 (a few branched), nasal cirri 12 (a few branched).



FIGURE 1. *Labrisomus conditus* sp. n., holotype (ZUEC 6225), 119.0 mm SL (Photograph by C. Sazima).

Color pattern: adult males variable; body grayish or reddish brown to dark brown crossed by four darker irregular bars, sometimes with fainter and shorter ones between them, with scattered irregular pale spots (less conspicuous on dark individuals, and faint or absent in preservation); caudal peduncle same color as body often with a darker bar; head grayish or reddish brown to dark brown, cheeks mottled yellowish brown (obscure in dark individuals); chin, throat, chest and belly yellowish brown to gray with scattered darker melanophores (a few individuals with pale blotches on chin and throat); a blackish spot on light or reddish to dark brown opercle; dorsal-fin grayish to dark brown to about the middle of the rays, the remainder portion pale to grayish brown in some individuals (darker individuals with almost uniformly brown fin); pectoral-fins gray to dark brown with paler base; pelvic-fin grayish to dark brown; caudal-fin grayish or reddish brown to dark brown to about the middle extending to the central and 2–3 lower rays, the remainder ones pale grayish brown (heavily pigmented in a few individuals) crossed by darker markings; adult females differ from males mostly by profusion of pale dots on head, very numerous on the lower portion and reaching the base of pectoral-fin; pale blotches on chin and throat more conspicuous; scattered irregular pale spots and blotches on body including the darker bars; dorsal, anal, caudal and pectoral-fins dark brown mottled pale gray; usually a dark spot between second and third spines of dorsal-fin. In life and natural habitat, males and females with diffuse and incomplete broad orange margin on opercular spot, more conspicuous on males (Figure 2); light blue dots on head and body (Figures 2–4), interspersed with greenish blotches on body and dorsal-fins (clearly visible on females, Figure 3); bars on body reach dorsal-fin. Two males photographed in a field aquarium – thus presumably under considerable stress – displayed narrow, incomplete rim (in one individual orange and in the other bluish green) on the opercular spot and the diffuse and incomplete broad orange margin was obscured; the narrow rim disappeared shortly after death. A bluish green rim was also noted in a juvenile observed in natural habitat at a very low tide.

Etymology. From the Latin *conditus* = hidden, an allusion to this scaly blenny being misidentified as *L.*

nuchipinnis by most authors who dealt with specimens from Fernando de Noronha Archipelago.

Distribution: *Labrisomus conditus* **sp. n.** is presently known only from Fernando de Noronha Archipelago (03°50'S, 32°25'W), a volcanic formation off NE Brazil, tropical Southwestern Atlantic.



FIGURE 2. *Labrisomus conditus* **sp. n.**, adult male in natural habitat, showing red-brown head, darkened brownish body, dark opercular spot with diffuse and incomplete broad orange margin, and pale blue dots overall but more conspicuous on head (Photograph by I. Sazima).

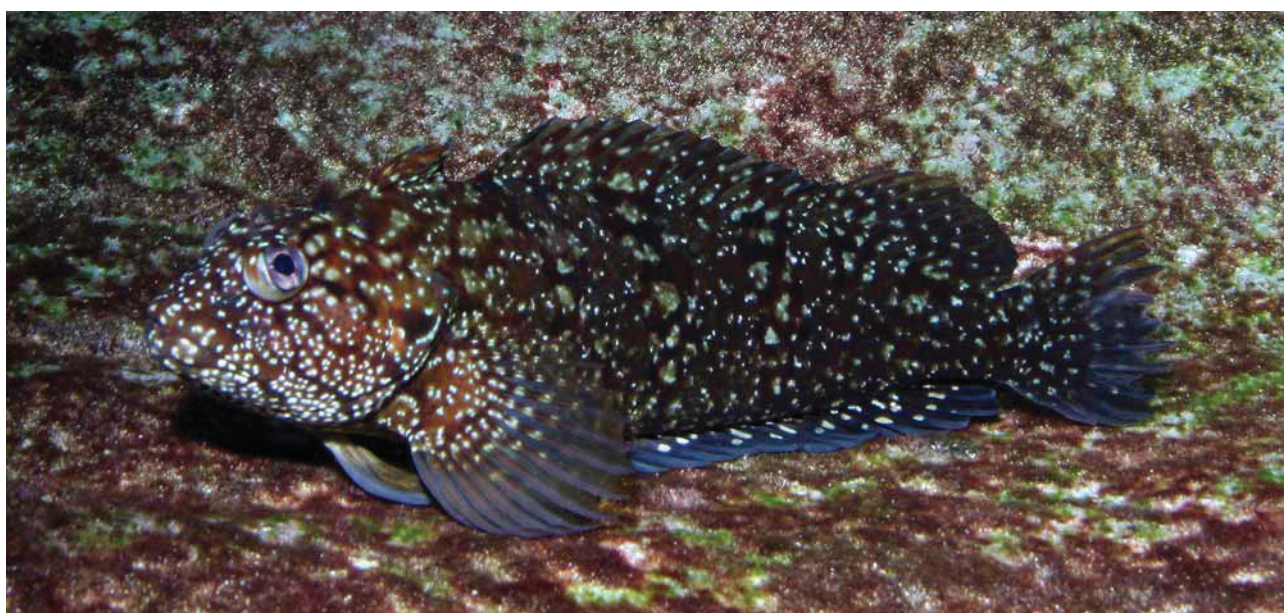


FIGURE 3. *Labrisomus conditus* **sp. n.**, adult female in natural habitat, showing a profusion of pale blue dots overall and darker bands with green blotches on body and dorsal-fin. Part of spiny dorsal-fin is missing and median part of caudal-fin is in process of regeneration (Photograph by C. Sazima).

Remarks: *Labrisomus conditus* **sp. n.** is readily distinguished from the sympatric *Labrisomus kalisherae* (Jordan) and the allopatric, Caribbean *Labrisomus albigenys* Beebe & Tee-Van, *Labrisomus bucciferus* (Poey), *Labrisomus gobio* (Valenciennes), and *Labrisomus haitiensis* Beebe & Tee-Van, by the dark spot on opercle (absent in the five latter species, Springer 1959a). The new species differs from *Labrisomus filamentosus* Springer by the absence of three long and flexible anterior spines on the dorsal fin (color figure

in Humann & DeLoach 2002). From *Labrisomus guppyi* (Norman) and *Labrisomus nigricinctus* Rivero the new species is distinguished by higher number of lateral line scales (Springer 1959a); additionally, the latter species has a distinct banded color pattern and opercular spot clearly delimited by complete narrow rim (color figure in Humann & DeLoach 2002). The new species most closely resembles *Labrisomus nuchipinnis* (Quoy & Gaimard) and *Labrisomus cricota* Sazima, Gasparini & Moura (Figures 1 and 3 in Sazima *et al.* 2002) with which it shares a conspicuous dark opercular spot and a high number of lateral line scales (64 to 69 in the two former species and 68 to 73 in the new species). *Labrisomus conditus* **sp. n.** differs from *L. cricota* by first and second rays of dorsal-fin slightly shorter than third (versus first and second rays longer than third); additionally, the new species has light blue dots overall (versus blue dots on head only). From *L. nuchipinnis* the new species differs mostly by median nuchal cirri when depressed not reaching origin of dorsal-fin (versus reaching origin of dorsal-fin), numerous light blue dots overall in life (versus no such dots), dark opercular spot diffusely delimited by incomplete and broad orange margin in life (versus clearly delimited narrow white rim). The narrow orange or bluish green rim observed in two *Labrisomus conditus* **sp. n.** males in a small field aquarium disappeared shortly after death (narrow white rim on the opercular spot of *L. nuchipinnis* remains clearly seen in freshly preserved individuals, see Sazima *et al.* 2002). Additionally, the new species has the apical and centralmost vomerine tooth at least 5 times larger than remainder (about 3 times in *L. nuchipinnis*), the latter in 2–3 rows (single row in *L. nuchipinnis*).

There are five species within the genus *Labrisomus* presently known from Southwestern Atlantic: *L. nuchipinnis*, *L. kalisherae*, *L. cricota* and *Labrisomus conditus* **sp. n.** (Sazima *et al.* 2002, present paper), besides *L. gobio* – this latter based on seven specimens (UF 172866) identified by W. F. Smith-Vaniz and collected at Rocas Atoll, off northeastern Brazil (W. F. Smith-Vaniz pers. comm.), and an additional specimen from the same locality (MZUSP 48244). The record of *L. guppyi* from Fernando de Noronha Archipelago (Greenfield & Johnson 1981) could refer to the species described here as new, since presently there is no substantiated record of *L. guppyi* for Brazil (*e.g.* Robins & Ray 1986, Cervigón 1994, Carvalho-Filho 1999, Sazima *et al.* 2002).



FIGURE 4. *Labrisomus conditus* **sp. n.**, adult female in natural habitat, showing nasal, supra-orbital, and nuchal cirri, dark pattern, and a profusion of pale blue dots on head, especially on chin and throat; sand grains are adhered to dorsum and first dorsal spine (Photograph by I. Sazima).

Natural History: *Labrisomus conditus* **sp. n.** is a territorial bottom-dweller in rocky shores (Figure 5) and is found among algae and in crevices at depths from 0.5 to 6 m. Females and juveniles dwell most often on sandy substrata near rocks (Mendes 2006). The new species feeds mostly on crustaceans (crabs, amphipods) and molluscs (snails, bivalves). On occasions it may follow a foraging *Muraena pavonina* Richardson (Sazima *et al.* 2007, N= 2) and very occasionally seeks the cleaning stations of *Elacatinus phthiophagus* Sazima, Carvalho-Filho & Sazima (IS pers. obs., N= 1). *Labrisomus conditus* **sp. n.** is a territorial fish (Mendes 2006) like other species within the genus (Sazima *et al.* 2002). Breeding males in the process of attracting females display reddish head and dark bands on lighter background (Mendes 2006), a trait also recorded for *L. cricota* and *L. nuchipinnis* (Sazima *et al.* 2002, Gibran *et al.* 2004).



FIGURE 5. Type locality of *Labrisomus conditus* **sp. n.**, rocky shore at the Praia do Boldró, Fernando de Noronha, Pernambuco, northeastern Brazil (Photograph by C. Sazima).

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Literature cited

- Boulenger, G.A. (1890) Pisces. In: Ridley, H.N. Notes on the zoology of Fernando de Noronha. *Journal of the Linnean Society, Zoology*, 20, 483.
- Carvalho-Filho, A. (1999) *Peixes, costa brasileira*. 3rd ed. Melro Editora, São Paulo, 340 pp.
- Cervigón, F. (1994) *Los peces marinos de Venezuela*. 2^a ed., vol. 3, Fundación Científica Los Roques, Caracas, 295 pp.
- Gibran, F.Z., Santos, F.B., Santos, H.F. & Sabino, J. (2004) Courtship and spawning of the hairy blenny *Labrisomus*

- nuchipinnis* (Labrisomidae) in southeastern Brazil. *Neotropical Ichthyology*, 2(3), 163–166.
- Greenfield, D.W. & Johnson, R.K. (1981) The blennioid fishes of Belize and Honduras, Central America, with comments on their systematics, ecology, and distribution (Blenniidae, Chaenopsidae, Labrisomidae, Trypterygiidae). *Fieldiana, Zoology*, 8, 1–106.
- Hubbs, C. (1953) Revision of the eastern Pacific fishes of the clinid genus *Labrisomus*. *Zoologica N.Y.*, 38(3), 113–136.
- Humann, P. & DeLoach, N. (2002) *Reef fish identification: Florida, Caribbean, Bahamas*. Enlarged 3rd ed. New World Publications, Jacksonville, 481 pp.
- Leviton, A.E., Gibbs, R.H., Jr., Heal, E. & Dawson, C.E. (1985) Standards in herpetology and ichthyology: Part I; Standard symbolic codes for institutional resource collections in herpetology and ichthyology. *Copeia*, 1985(3), 802–832.
- Mendes, L.F. (2006) História natural dos amborés e peixes-macaco (Actinopterygii, Blenniodei, Gobiodei) do Parque Nacional Marinho do Arquipélago de Fernando de Noronha, sob um enfoque comportamental. *Revista Brasileira de Zoologia*, 23(3), 817–823.
- Robins, C.R. & Ray, G.C. (1986) *A field guide to Atlantic coast fishes, North America*. Houghton Mifflin, Boston, 354 pp.
- Sazima, C., Krajewski, J.P., Bonaldo, R.M. & Sazima, I. (2007) Nuclear-follower foraging associations of reef fishes and other animals at an oceanic archipelago. *Environmental Biology of Fishes*, 80(4), 351–361.
- Sazima, I., Gasparini, J.L. & Moura, R.L. (2002) *Labrisomus cricota*, a new scaled blenny from the coast of Brazil (Perciformes: Labrisomidae). *Aqua, Journal of Ichthyology and Aquatic Biology*, 5(3), 127–132.
- Soto, J.M.R. (2001) Peixes do Arquipélago Fernando de Noronha. *Mare Magnum*, 1(2), 147–169.
- Springer, V.G. (1959a) Systematics and zoogeography of the clinid fishes of the subtribe Labrisomini Hubbs. *Publications of the Institute of Marine Sciences, University of Texas*, 5, 417–492.
- Springer, V.G. (1959b) A new species of *Labrisomus* from the Caribbean Sea. *Copeia*, 1959(4), 289–292.